

Application Serial No. 10/817,552
Attorney Docket No. 2004P03346US

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REMARKS

The Examiner rejected claim 8 pursuant to 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner alleged that control or distinguishing between use and handling is not disclosed, so claiming the switch as a relay is not enabled. First, the switch as a relay is what is claimed. Relays are known switching devices. A person of ordinary skill is enabled to use a relay. The specific control or times of switching are not claimed, so are not required to be enabled. Second, transducers typically have identification circuits that are active when plugged into an imaging system and otherwise inactive. Many other circuits for use in transducers have been proposed. Electrical conductors extend into and from transducers. A person of ordinary skill in the art would have been enabled to control and operate the relay for certain uses based on the disclosure of the relay without more specific teachings.

Applicants respectfully request reconsideration of the rejections of claims 1-21, including independent claims 1, 12 and 20. Claims 1, 2, 12, 13, and 20 were rejected pursuant to 35 U.S.C. § 103(a) as being unpatentable over McIntosh (U.S. Patent No. 2002/0124656) in view of Wilson (U.S. Patent No. 3,408,571).

Independent claim 1 recites a flexible membrane adjacent a void, a conductor connected with the flexible membrane, and a voltage limiting circuit connected with the conductor. Since McIntosh does not disclose a voltage limiting circuit connected with the membrane conductor, the Examiner relies on Wilson. For the motivation to use the circuit of Wilson with the membrane transducer of McIntosh, the Examiner alleges a same problem being solved by both leading to motivation to protect other transistors.

A person of ordinary skill in the art would not have modified the McIntosh solution by adding the circuit of Wilson. First, Wilson and McIntosh deal with different problems. The examiner notes the overlap in subject matter of capacitive transducers as a same problem area. However, the references must address the same problem to provide a teaching, suggestion or motivation (see Ruiz v. A.B. Chance, 234 F.3d 654, 665 (Fed.

Cir. 2000)). McIntosh desires low noise, high sensitivity and wide linear dynamic range (¶ 19), especially in variable area capacitors (VAC) (¶'s 22-28). Wilson addresses different problems of impedance, size, power supply, wireless, fault identification and less ground noise (col. 2, lines 1-40). Given the different nature of the problems, a person of ordinary skill would not have looked to Wilson for a solution to the problems of McIntosh, so would not have modified McIntosh based on the teachings of Wilson.

Second, the overlapping subject matter is sufficiently unrelated that a person of ordinary skill would not have been motivated to modify McIntosh based on Wilson. McIntosh relates to transducers self-biased by a thin film electret (¶ 3). Variable area transducers are prevented as a solution (¶'s 15-18). Conversely, Wilson is directed to an amplifier connected with a condenser microphone where the amplifier is used in place of an electro tube cathode follower (col. 1, lines 39-43). Wilson is directed to very early transistor work while McIntosh is concerned with technology for much more recent transducer devices. A person of ordinary skill in the art would not have modified McIntosh based on Wilson since the references are directed to different subject matter. The Examiners noted overlap of capacitive transducers is overly broad in light of even the broadest statements of field in the references themselves.

Third, the motivation of protecting other transducers in the system of McIntosh would not lead to incorporating the circuit of Wilson. McIntosh does not disclose other transistors to protect. The circuit of Wilson protects itself, not other transistors (Col. 7, lines 10-18). A person of ordinary skill would not have modified McIntosh according to the teaching of Wilson to protect other transistors since the teaching of Wilson is noted as self-protecting and McIntosh does not suggest any transistors to protect.

Fourth, a person of ordinary skill would not have used the circuit of Wilson with McIntosh since McIntosh teaches away from such circuits. McIntosh notes DC polarization from an integrated electric being desired and external DC bias supply being undesired (¶ 8). The circuit of Wilson operates to supply external DC bias to the transducer (col. 4, lines 13-23). Since the circuit of Wilson is used for the very thing McIntosh is trying to avoid, a person of ordinary skill in the art would not have modified McIntosh with the teachings of Wilson.

For any one or more of the four independent reasons noted above, a person of ordinary skill in the art would not have modified McIntosh by adding the circuit of Wilson.

Independent claim 12 recites generating acoustic or electrical signals with variation between a first electrode on a membrane and a second electrode where the variation is flexing of the membrane, and limiting a voltage between the electrodes with a protection circuit. Independent claim 20 recites a capacitive membrane ultrasound transducer, and a high voltage protection circuit connected with the transducer. Claims 12 and 20 are allowable for the same reasons as claim 1.

Dependent claims 2 and 13 depend from claims 1 or 12, so are allowable for the same reasons as the corresponding independent claim.

Claims 3, 4, 14, 15, and 17 were rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over McIntosh in view of Wilson and Shen et al. (U.S. Patent No. 6,160,091). These dependent claims are allowable for the same reasons as the corresponding base claims 1 or 12. Regarding claims 3, 4, 14, 15 and 17, a person of ordinary skill in the art would not have used the opposite Zener diodes of Shen with the circuit of Wilson. A different problem is addressed. In Wilson, the transistor acts as a Zener diode upon failure (col. 7, lines 2-18). A person of ordinary skill would not have used the Zener diodes for voltage limiting of Shen since the diodes would prevent proper operation of the circuit to provide DC bias.

Regarding claim 17, Zener diodes do not short, but instead limit with a stepped voltage.

The Examiner rejected dependent claims 5, 6 and 16 pursuant to 35 U.S.C. § 103(a) as being unpatentable over McIntosh et al. in view of Wilson and Kim (U.S. Patent No. 5,859,758). A person of ordinary skill in the art would not have provided the diode and voltage source voltage limiting of claims 5, 6 and 16 based on the teachings of McIntosh, Wilson and Kim for the reasons given above for claims 1 and 12. A person of ordinary skill in the art would not have provided a bias voltage source and associated circuit as part of the voltage limiting circuit since Wilson only limit during a failure mode of a transistor. Bias would not be added due to the undesired effects on transistor operation.

Claim 7 was rejected under 35 U.S.C. §103(a) as unpatentable over McIntosh in view of Wilson and Bell et al. (U.S. Patent No. 4,630,162). Claim 7 is allowable for the same reasons as claim 1. Since Wilson is directed to solving a problem other than voltage limiting, a person of ordinary skill would not have used the shorting of Bell. Wilson only limits during a fault for self protection, not to limit voltage supplied to the transducer. Voltage limiting of Bell would not have been used. During operation in Wilson, the transistor provides DC bias. Rather than provide a separate switch for shorting, Wilson would use the fault mode as taught.

The Examiner rejected dependent claims 9-11, 18, 19, and 21 pursuant to 35 U.S.C. § 103(a) as being unpatentable over McIntosh in view of Wilson and Wagner et al. (U.S. Patent No. 5,430,595). A person of ordinary skill in the art would not have provided the limitations of claims 9-11, 18, 19 and 21 for the reasons given above for claims 1, 12 and 20. Since Wilson only limits during a failure made of a transistor, a person of ordinary skill in the art would not have used the diodes and associated position of Wagner et al. In the claims, the voltage limiting connects with the membrane conductor. If the limiting circuit is adjacent the element to be protected, the circuit would not have been in the transducer connector.

The integration cited by the Examiner from the court decision is not being claimed. The circuit is a separate component from the housing. The housing for piezoelectric elements may not include any electronics. It would not have been obvious to include the voltage limiting circuit in the transducer housing rather than at the imaging system with other electronics.

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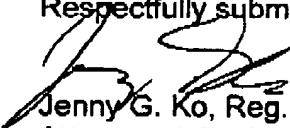
OCT 06 2006

CONCLUSION

Applicants respectfully submit that all of the pending claims are in condition for allowance and seeks early allowance thereof. If for any reason, the Examiner is unable to allow the application but believes that an interview would be helpful to resolve any issues, he is respectfully requested to call the undersigned at (650) 694-5810 or Craig Summerfield at (312) 321-4726.

PLEASE MAIL CORRESPONDENCE TO: Respectfully submitted,

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